Reporting a suspect BT event:

Role of the clinician, the local health department, and others

Sara H. Cody, MD
Communicable Disease Control Officer
Santa Clara County Public Health Dept.

Outline

- Overview of Local Public Health System
- Why report?
- Who might detect and report an event?
- What to report
- How to report
- Local health dept role

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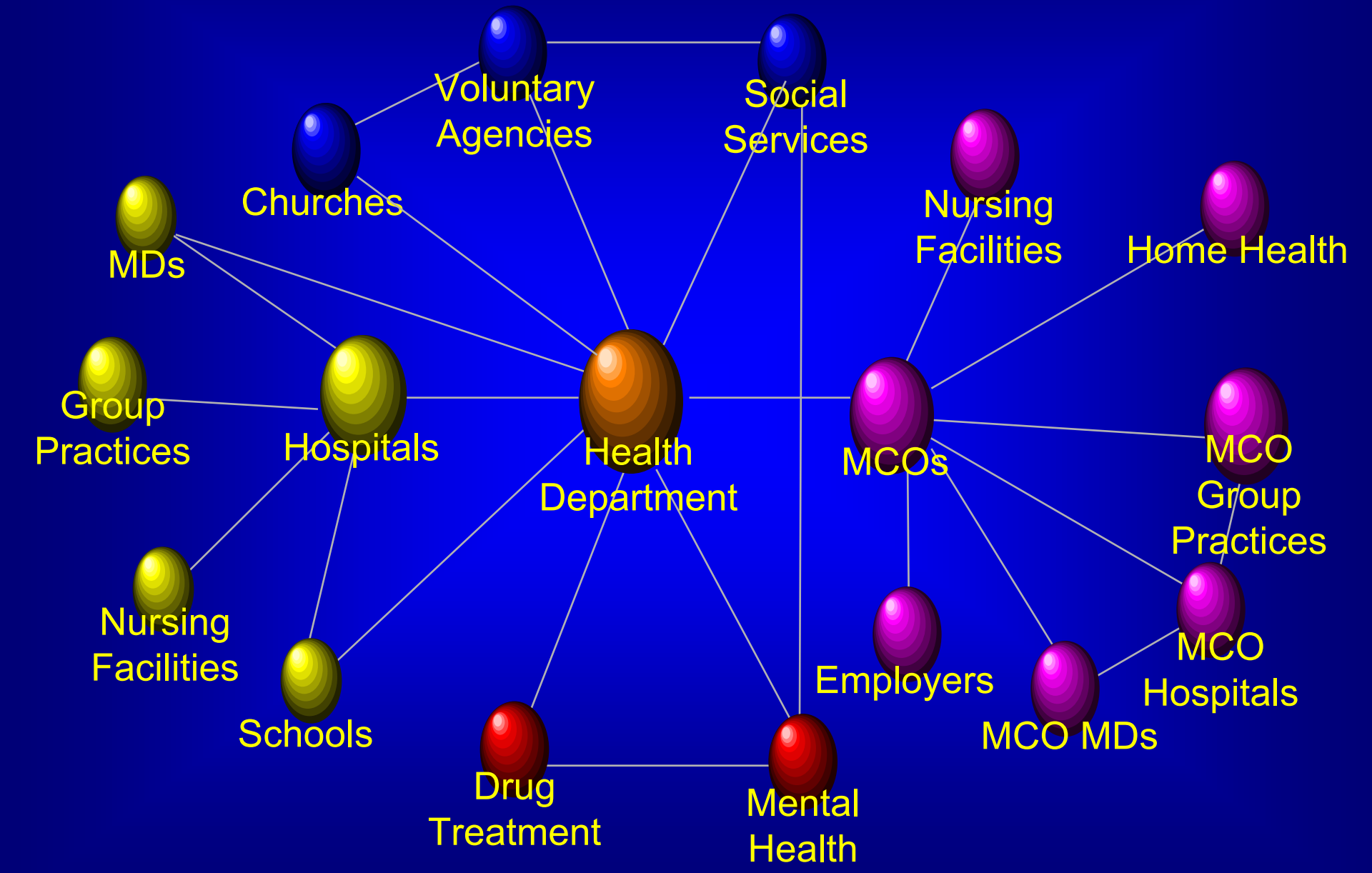
Local Public Health System



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Why report?

- Legal mandate
  - Health care providers required to report 83 different diseases
  - Labs required to report 18 of the 83
- Protect public health

Protect Public Health

- Timely reporting of communicable diseases, suspect or confirmed, is CRITICAL to identify outbreaks and suspect BT events
- Current system relies heavily on health care providers
- Health Dept can't make an intervention until problem is identified

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Who might first detect a problem?

- Clinicians (hospital, urgent care, clinics)
- Pharmacists (ex: crypto in Milwaukee)
- Veterinarians
- Animal Control
- Vector Control
- Emergency Medical personnel
- Laboratorians
- Pathologists
- Coroner

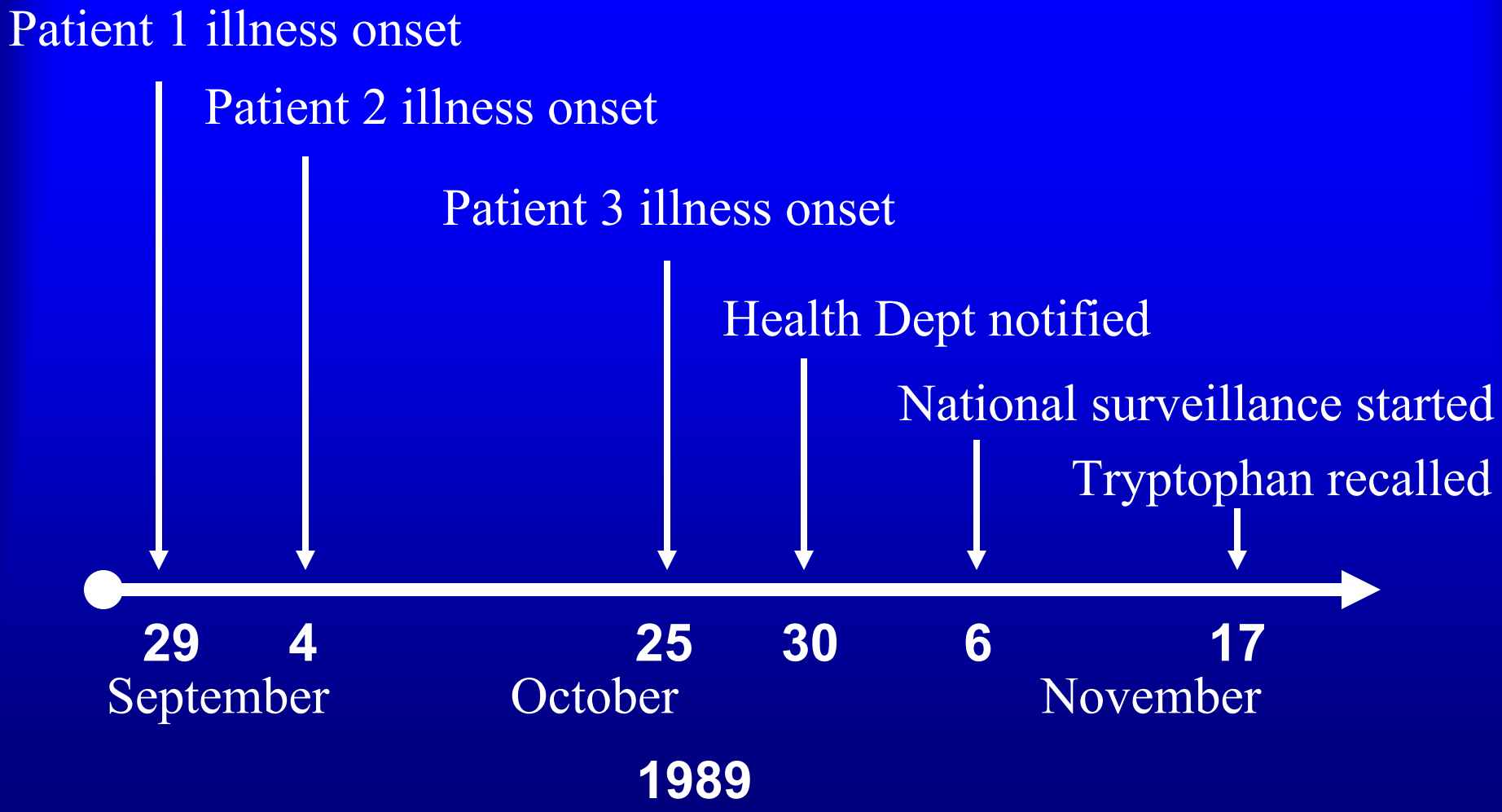
Role of the clinician in disease identification and reporting

- Eosinophilia Myalgia Syndrome

Role of the astute clinician in detection and reporting

- Sept 29, 1989 - previously healthy 44 y.o. woman with increasing muscle aches and weakness. WBC: 42% eosinophils
- Oct 4, 1989 - previously healthy 39 y.o. woman seen for incapacitating muscle pain. WBC: 24% eosinophils
- Oct 25, 1989 - 37 y.o. woman with progressive muscle aches and weakness. WBC: 49% eosinophils

Timeline


Patient 1 illness onset
Patient 2 illness onset
Patient 3 illness onset
Health Dept notified
National surveillance started
Tryptophan recalled
29
4
25
30
6
17
September
October
November
1989

Role of collaboration in disease detection and reporting

- Example: West Nile Virus

New York City, summer 1999 clinicians and public health

- August 23: ID physician reports 2 cases of encephalitis; NYCDOH investigates and finds 6 more, all in Queens
- August 30: active surveillance begins
- Sept 3: cases test positive for SLE; aerial and ground spraying begins

New York City, summer 1999 veterinarians and zoo keepers

- June/July: unusual bird deaths reported in Queens & Bronx, esp among crows

Sept 7-9: Bronx zoo officials note deaths of cormorant,asian pheasant 2 chilean flamingos; necroscopy: meningo-encephalitis

New York City, fall 1999 lab tests link human and bird cases

- Sept 10: bird tissue sent to Nat Vet Lab
- Sept 20: viral isolates sent to CDC
- September 23, CDC:
  - PCR and sequencing of and bird isolates show WNV, never before isolated in western hemisphere
  - bird sequence matches that from human encephalitis case

Lessons from West Nile Virus

"One of the biggest lessons I learned is how important it is for health departments to have good relationships with the clinical community... We might not have recognized the outbreak until much later had the physician not called the local health department to report those two cases"

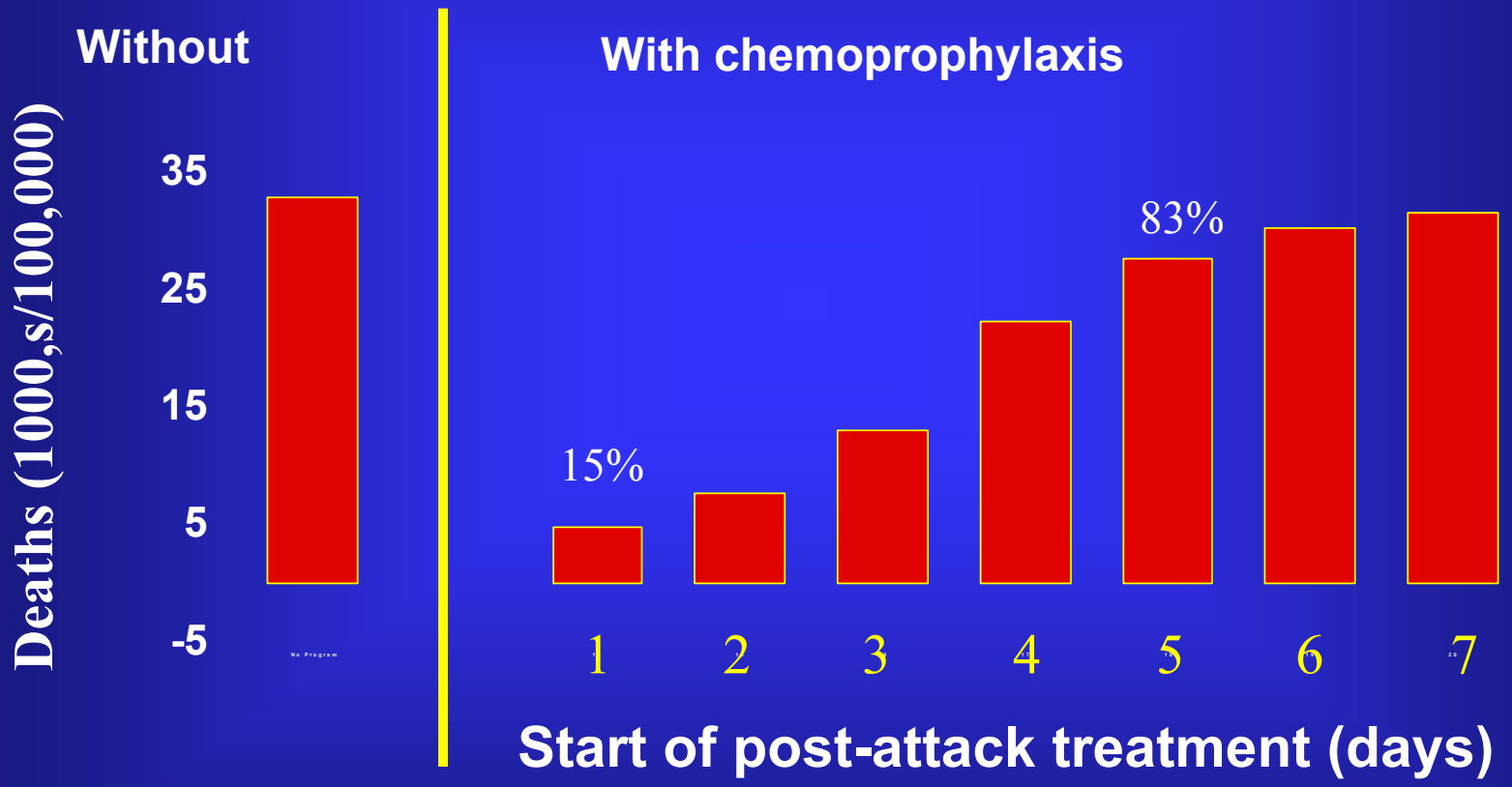
Dennis Nash, MD
CDC Epidemic Intelligence Service Officer
EIS Bulletin, Summer 2000

More lessons from West Nile Virus

"early on in the outbreak, several things were going on in parallel -- the veterinarians were observing the dying cows, and the physician was noticing a funny illness in patients. This is yet another example of the need for veterinarians, physicians, researchers, and public health people to all come together ..."

Steve Ostroff, MD
DHHS Coordinator for
West Nile Virus Activities

Deaths with and without post-exposure prophylaxis following an anthrax release



Source: Kaufmann AF, Meltzer MI, Schmid GP. *Emerging Infect Dis* 1997; 3:83-94.

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What to Report?

- Any illness suspected to be from an agent of bioterrorism (category A)
  - **Smallpox (Variola major)**
  - **Anthrax (*Bacillus anthracis*)**
  - **Plague (*Yersinia pestis*)**
  - **Tularemia (*Francisella tularensis*)**
  - **Botulism (Botulinum toxin)**
  - **Viral hemorrhagic fevers (Filoviruses and Arenaviruses)**

What to Report?

- Any illness suspected to be from an agent of bioterrorism (category B)
  - **Q Fever (*Coxiella burnetii*)**
  - **Brucellosis *(Brucella abortus, etc)***
  - **Glanders *(Burkholderia mallei)***
  - **Viral encephalitides (Venezuelan equine encephalitis)**
  - **Staphylococcal enterotoxin B**
  - **Food/Waterborne (*Salmonella, Shigella, Cholera, Cryptosporidium*)**

What to report?

Worrisome clinical syndrome

in the context of

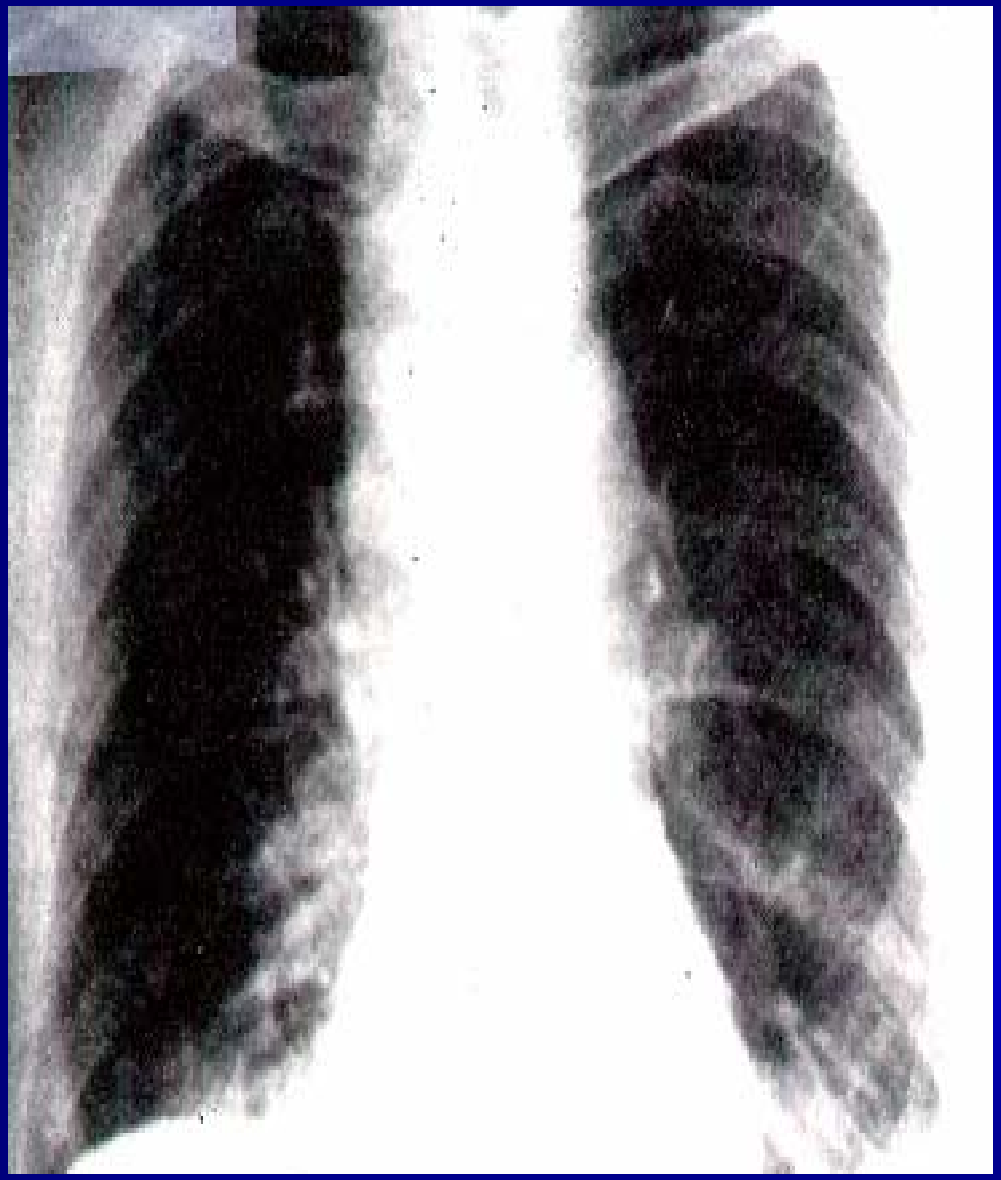
Worrisome clinical setting

What to report: Worrisome clinical setting

- Atypical host characteristics
  - young, immunologically intact, no underlying illness
- Serious, unexpected, acute illness
  - abrupt onset, cardiovascular collapse, respiratory distress, DIC
- Multiple similarly presenting cases
- Increases in common syndromes occurring out-of-season (e.g. influenza-like-illness in the summer)

What to report: Worrisome clinical syndromes

- Acute severe pneumonia or respiratory distress, especially with
  - hemoptysis (? pneumonic plague)
  - cyanosis (? Anthrax, ? plague)
  - shock (? Anthrax, ? Tularemia, ? Plague, ?VHF)
  - widening of the mediastinum (? anthrax)
  - pleural effusions, esp hemorrhagic (?anthrax, ? tularemia)



Mediastinal widening in an otherwise healthy person is pathognomonic for inhalational anthrax

What to report: Worrisome clinical syndromes

- Encephalopathy, especially with
  - acute confusion/obtundation/ataxia
  - seizures
  - focal neurologic deficits
  - fever

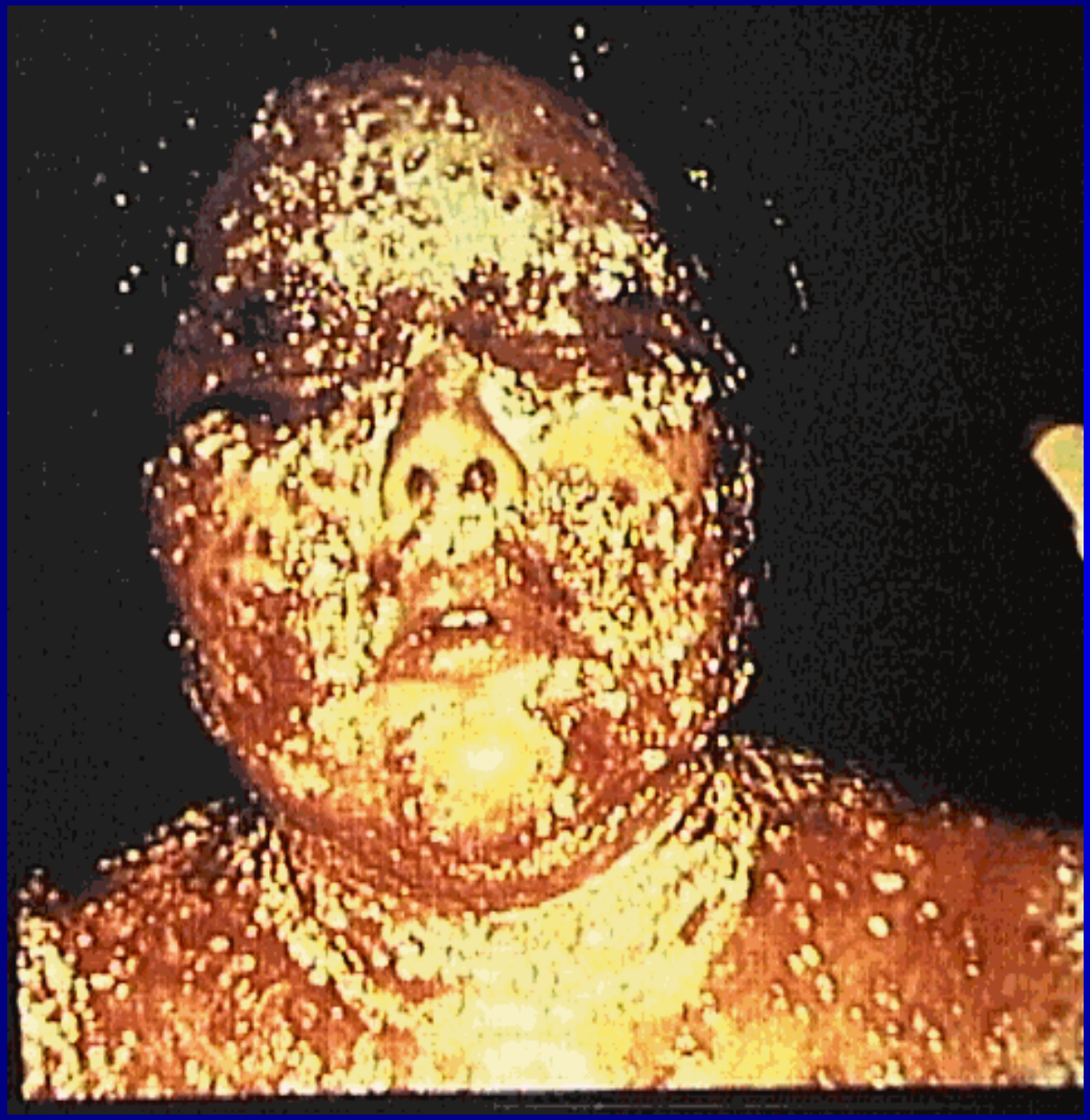
- BT agent that might explain this
  - Viral encephalitides (VEE, WEE, EEE)

What to report: Worrisome clinical syndromes

- Neuromuscular presentation, especially with:
  - acute bilateral descending flaccid paralysis
  - cranial nerve palsies
  - early respiratory distress, speaking & swallowing difficulties
  - normal sensory exam
- BT agent that might explain this
  - Botulinum toxin

What to report: Worrisome clinical syndromes

- Rash with fever that is otherwise unexplained, especially if associated with:
  - synchronous and centripetal papules progressing to pustules
- BT agent that might explain this:
  - smallpox



USAMRICD:
later stage
facial lesions of
smallpox

What to report: Worrisome clinical syndromes

- Fever with mucous membrane bleeding
  - ? Ebola, Marburg, other VHF
- Massive diarrhea with dehydration and collapse
  - ? Cholera, other enteric pathogen

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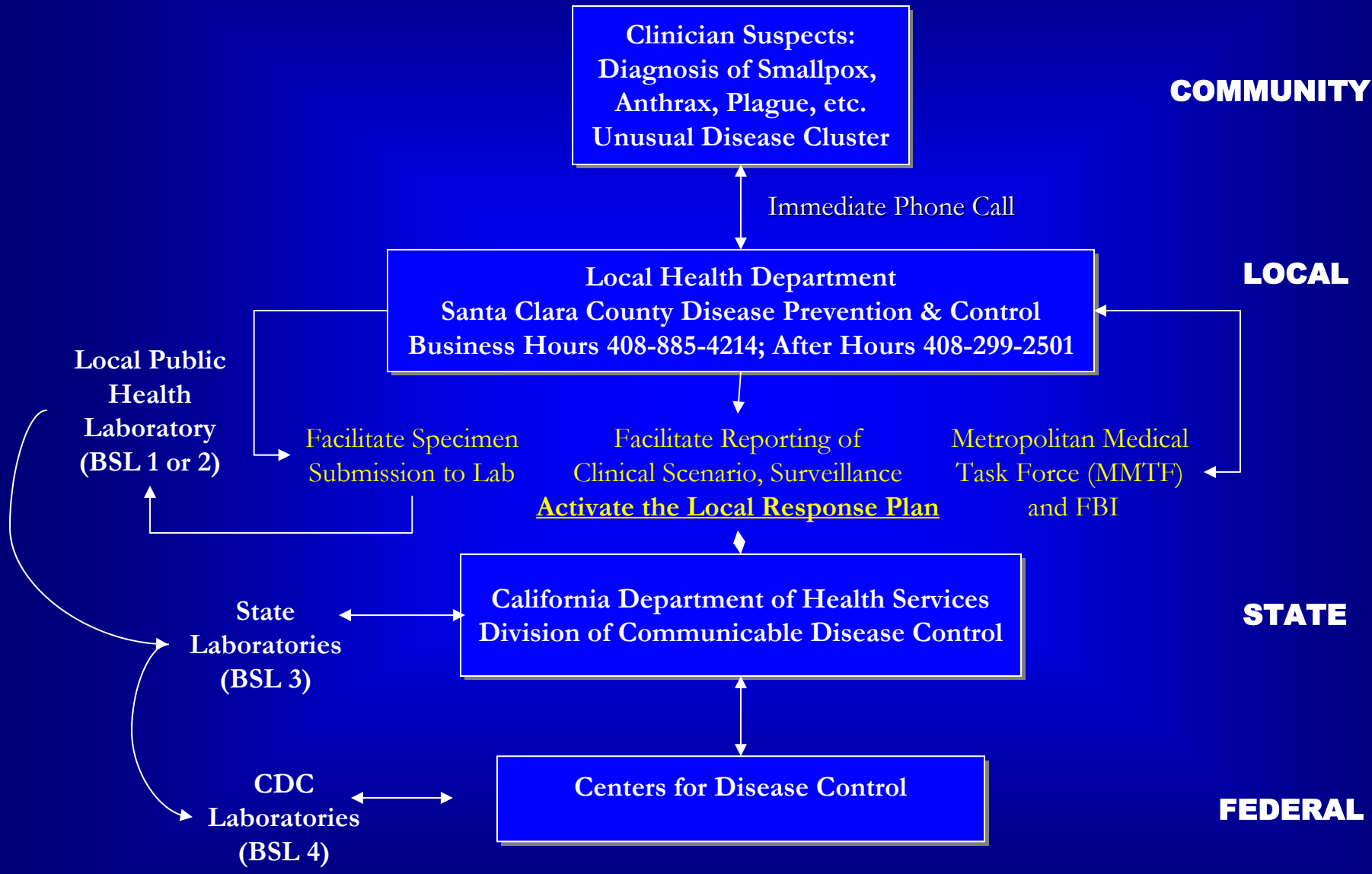
How to report

- During regular business hours
  - call Disease Prevention and Control
    - **408-885-4214**
- After hours, weekends and holidays
  - call County Communications, ask for Health Officer of Disease Control Officer
    - **408-299-2501**

Reporting Suspected Bioterrorism Related Illness



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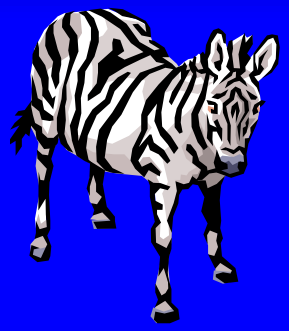
Local health department roles

- Case investigation
  - detailed clinical information, by phone, chart review, or visit with patient
- Lab specimens - type, urgency, routing
- Case finding
  - calls to other EDs, clinics, EMS, pharm, etc
- Determine whether situation is “unusual”
- Early communication with DHS and FBI

What is "unusual"?

- Single case of small pox like rash
- Single case of widened mediastinum in pt with resp distress and no trauma hx
- Single case of fever and mucous membrane bleeding
- Two hospitals call; each report young adult with fever and hemoptysis
- Two cases of suspect botulism
- Lab or path report of ANY agent of bioterrorism



Conclusions

- Rapid detection of BT event will depend on rapid reporting by clinicians and others
- “Zebra awareness” and over-reporting of suspicious illness will be necessary to detect an event early when it does arrive
- Local Public Health Dept is the portal of entry